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May 30, 2012

Joseph W. Kimbrell
Major Source Unit, Permits Section
NMED Air Quality Bureau
1301 Siler Road, Building B
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RE: Update to SCR Permit Application and Response to Request for Information

Mr. Kimbrell,

This letter responds to your request for clarification on PNM's permit application for the proposed installation of SCR systems at SJGS, including the PSD Applicability Determination provided in Section 12. Please replace the original Section 12 in the NSR application with the attached, which responds to Information Request 1 in your letter. In the revised Section 12, PNM has provided "aggregated" emission calculations to further confirm that the SCR projects do not trigger PSD for sulfuric acid mist based on PNM's Toxic Release Inventory ("TRI") reports.

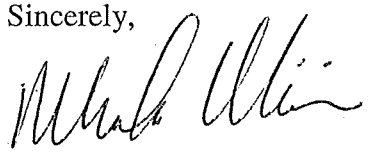
With regard to Information Request 2, the revised PSD analysis in Section 12 again shows that the sulfuric acid emissions change as a result of installing SCR is less than the PSD significant emission increase, and therefore does not trigger PSD permitting requirements.

In Information Request 3, NMED requested an explanation of differences in the sulfuric acid emissions reported by PNM for the TRI and the unit-by-unit estimate of "baseline actual emissions" of sulfuric acid included in its permit application for the SCRs. In short, although both calculations utilize the same general calculation methodology employed throughout the utility industry (and employed by EPA in its FIP analysis), PNM's initial baseline calculations assumed current operations and controls, whereas its TRI reports were based on each unit's characteristics at the time the TRI reports were prepared. PNM's initial "baseline actual emissions" estimate for all four units, when added together, was approximately 3 tpy. That estimate was based on the assumptions used in EPA's FIP analysis for sulfuric acid currently released from combustion (4.63E-5 lb/mmBtu), multiplied by the highest two-year average heat input over the 5-year look-back from November 2007 through December 2011. As such, PNM's initial estimate resulted in emission rates that are significantly lower than a true "baseline actual emissions" calculation, which reflects the use of scrubber bypass and a hot-side electrostatic precipitator without a baghouse until the environmental upgrades were actually installed at each

unit (between 2007 and 2009, depending on the unit). Because the previous baseline estimate does not reflect actual emission rates, but instead relies on the current assumptions used in the FIP analysis, the resulting emissions estimate significantly understates actual emissions during the baseline period.

We trust that this information fully addresses the NMED's request. We look forward to proceeding with the permitting process for the SCR control equipment, and we appreciate the confirmation in your letter that a permit could potentially be issued within 90 days of the date the application is deemed complete. Because PNM plans to begin actual construction on the SCRs this fall (necessary for completion of the project by the FIP compliance deadline), we ask that NMED deem the application complete and issue the permit as quickly as possible to avoid any delay in the beginning of construction for the SCRs. In the interest of time, please contact me at (505) 241-2003 at your earliest convenience if you have any additional questions and to discuss any remaining concerns.

Sincerely,



Mark Williams
Air Quality Services Manager
Public Service Co. of New Mexico

Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

- ☐ **a minor PSD source before and after this modification (if so, delete C and D below).**
- ☐ **a major PSD source before this modification. This modification will make this a PSD minor source.**
- X **an existing PSD Major Source that has never had a major modification requiring a BACT analysis.**
- ☐ **an existing PSD Major Source that has had a major modification requiring a BACT analysis**
- ☐ **a new PSD Major Source after this modification.**

B. **This facility is one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions for this project are not significant. The only emissions that could increase as a result of this project are sulfuric acid mist (H_2SO_4) and particulate matter, and the calculations in ATTACHMENT ___ confirm that the increase will not exceed the significance levels for those pollutants of 7 tpy and 25 tpy, respectively. The "project" emissions are listed below; see ATTACHMENT ___ for more information. This project will not result in "de-bottlenecking", or other increases in emissions. The project emissions (before netting) for this project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:**

See discussion below

C. **Netting is not required (project is not significant).**

D. **BACT is not required.**

E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered.

No other permit modifications are related to this permit application.

Although the installation of the SCR and DSI systems at SJGS constitute "physical changes" and can affect the emission rates of certain pollutants, the emission calculations below confirm that

the projects will not result in a significant emissions increase and thus do not trigger PSD pre-construction permitting requirements.

I. Sulfuric Acid

SCR systems can generate sulfuric acid because the same chemical reaction that converts nitrogen oxides (NO_x) into nitrogen and water also oxidizes sulfur dioxide (SO_2) into sulfur trioxide (SO_3), which naturally reacts with water vapor to form sulfuric acid (H_2SO_4). However, the "aggregated" calculation below confirms that the installation and operation of SCR systems at SJGS will not result in a significant emissions increase of H_2SO_4.

Baseline Actual Emissions *(average of 2008 and 2009 TRI reports submitted to EPA)*	**Potential Emissions** *(based on H_2SO_4 limit in the FIP at 100% capacity for 8,760 hrs/year)*	**Change in H_2SO_4 Emissions**	**H_2SO_4 PSD Significance Threshold**
22.7 tpy	21.6 tpy	**– 1.1 tpy**	7 tpy

This calculation is consistent with the federal and New Mexico PSD regulations. The definition of "baseline actual emissions" allows use of "any consecutive 24-month period selected by the owner or operator within the 5-year period immediately preceding when the owner or operator begins actual construction of the project" (20.2.74.7G (1) NMAC). Unlike the rules applicable to all other types of stationary sources, the emission calculation rules for "electric utility steam generating units" do not require a downward adjustment for new emission limitations (*compare* 20.2.74.7G.(1) NMAC *with* 20.2.74.7G.(2) NMAC). Because actual construction of the SCR is scheduled to begin this fall, the look-back period for this analysis stretches from November 2007 through October 2012. As such, the baseline calculation above is based on the average of the annual H_2SO_4 emission rates submitted to EPA in the 2008 and 2009 TRI reports. The "baseline actual emissions" are compared to the "projected actual emissions," which according to 20.2.74.7 (AR)(4) NMAC, may be calculated based on each unit's potential to emit. The "baseline actual emissions" are 1.1 tpy below the future projected "potential" emissions, assuming the FIP emission limit for H_2SO_4 of 0.00026 lb/mmBtu and operation at a 100% capacity factor using each unit's maximum hourly heat input rating (3,707 mmBtu/hr for Units 1 & 2 and 5,758 mmBtu/hr for Units 3 & 4). The "potential" emissions calculation reflects both the decrease in H_2SO_4 emission rates achieved through elimination of the scrubber bypass and the installation of a fabric filter baghouse (both of which were required by the 2005 Consent Decree and installed over time between 2007 and 2009) and operation of the SCRs with a low-oxidation catalyst. Because this calculation results in a net decrease in H_2SO_4 emissions, the SCRs do not trigger PSD. The Units will also be equipped with a dry sorbent injection system (DSI) that will be used as necessary to comply with the FIP emission limit. In addition, since this analysis utilizes the "actual-to-potential" method of calculating future emissions, the SCRs do not trigger the PSD recordkeeping or reporting requirements of 20.2.74.300E NMAC.

II. Carbon Dioxide

A. Dry Sorbent Injection

The DSI systems planned for SJGS will be capable of utilizing either hydrated lime ($Ca(OH)_2$), Trona (sodium sesquicarbonate) or sodium bicarbonate ($NaHCO_3$ or SBC). Two of those sorbents, Trona and SBC, can result in the formation of additional carbon dioxide (CO_2) through the same chemical reaction necessary to reduce other regulated pollutants. However, the calculations below confirm that the use of either of these two sorbents at SJGS will not result in a significant emissions increase.

Unit	Maximum Emission Rate & Data Source[1]	Maximum Potential SBC Injection Rate[2]	Potential to Emit[3]
Unit 1	Mass Ratio of SBC to CO_2: 0.52	240.68 lb/hr	552.3 tpy
Unit 2		240.68 lb/hr	552.3 tpy
Unit 3		373.84 lb/hr	857.8 tpy
Unit 4		373.84 lb/hr	857.8 tpy

[1] The calculations are based on SBC because it has the highest CO_2 generation rate (based on CO2/sorbent mass ratio) of the sorbents currently under consideration for use in the SJGS DSI systems.

[2] The maximum injection rate is based on an injection location upstream of the air preheater with a conservative estimate of inlet SO_2 concentrations and a target outlet concentration of approximately 2 ppm.

3 The CO_2 emissions estimates above assume injection location upstream of the air preheater, and PNM has conservatively assumed that all of the sorbent will be completely calcined with no unreacted sorbent.

These conservative "actual-to-potential" emissions calculations provided above confirm that the installation of each DSI system will not increase CO_2 emissions by more than the applicable PSD greenhouse gas permitting threshold of 75,000 tpy of CO_2 equivalent (CO_2e). As a result, the projects do not trigger permitting requirements for greenhouse gases.

B. Selective Non-Catalytic Reduction (SNCR) System

If PNM's legal challenge to the EPA's regional haze FIP is successful and/or EPA approves the New Mexico regional haze SIP in replacement of the FIP, PNM will install a Selective Non-Catalytic Reduction (SNCR) system on each unit in lieu of the SCR and DSI systems. Although SNCR systems involve the injection of urea instead of the sorbents listed above, urea also has the potential to produce additional CO_2 emissions through the chemical reactions between the urea and nitrogen oxide (NO). However, based on a conservative "actual-to-potential" emission

calculation, assuming a maximum potential use of 77,581.9 lbs of urea per day, the total annual CO_2 emissions increase attributable to an SNCR would be between 10,372 and 13,140 tons per year, depending on the assumptions made in conversion rates. Because this CO_2 emissions increase would be well below the applicable PSD greenhouse gas permitting threshold of 75,000 tpy of CO_2 equivalent (CO_2e), the SNCR alternative included in this permit application would not trigger permitting requirements for greenhouse gases.

III. Particulate Matter

The injection of sorbents into the flue gas stream can have the potential to increase particulate matter (PM) emissions, since the sorbents themselves constitute PM if emitted from the stack. However, the existing SJGS baghouses are "constant output devices" – *i.e.*, capable of achieving a constant PM emission rate regardless of inlet PM concentrations, so long as the inlet concentrations are within the design capacity of the baghouses. The injection of sorbents via new DSI systems at SJGS are not expected to increase inlet concentrations beyond the design capacity of the baghouses. Therefore, despite the minimal increase in inlet PM emissions that could result from the injection of sorbents, stack PM emissions are not expected to change as a result of the installation and operation of the DSI systems at SJGS. Operation of the DSI and SCR or SNCR will result in a small increase in PM emissions due to increased truck traffic from sorbent deliveries. However, the increased PM emissions from additional truck traffic are well below the PSD significance threshold. As a result, the projects do not trigger PSD permitting requirements for PM.